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R-14

Code: 4G236

II B.Tech. I Semester Supplementary Examinations October 2020

Electrical Engineering and Electronics Engineering

(Common to ME, CSE & IT)

Max. Marks: 70

Time: 3 Hours

Answer all five units by choosing one question from each unit (5 x 14 = 70 Marks)

UNIT-I

- 1. a) Define the terms
i) Electric Current ii) Potential Difference iii) Electric Power iv) Energy
- b) Three capacitors of 2 mF, 5 mF and 10 mF are connected in series. Find the equivalent capacitance.

OR

- 2. a) Define the Ohm's Law and its applications.
- b) State and explain Kirchoff's laws using neat diagrams.

UNIT-II

- 3. a) Explain the operation of principle of DC generator.
- b) Derive the expression for Torque in a DC Motor.

OR

- 4. a) Derive the emf equation of DC generator.
- b) A 4-pole, lap wound, DC generator has a useful flux of 0.07Wb per pole, armature consists of 440 numbers of conductors. Calculate the generated emf when it is rotated at a speed of 900 rpm with the help of prime mover.

UNIT-III

- 5. a) Explain the principle of operation of single phase Transformer with neat sketch.
- b) Explain Torque-Slip Characteristics of a Three phase induction motor.

OR

- 6. a) Derive the expression for E.M.F equation of a transformer.
- b) Explain the principle operation of a three phase induction motor with relevant diagrams

UNIT-IV

- 7. Explain the operation of Half wave rectifier with relevant diagrams.

OR

- 8. a) Explain the operation of P-N junction diode mentioning its applications.
- b) Explain the input and output characteristics of transistor in CE configuration.

UNIT-V

- 9. Describe how phase and frequency are measured by using Lissajous figures.

OR

- 10. a) Describe how voltage, current and time period are measured by using CRO.
- b) List the applications of CRO.
